

Revised SRNWR Hunting Plan 2013/14

Appendix C. Sacramento River National Wildlife Refuge Hunting Plan

I. Introduction

Sacramento River National Wildlife Refuge (SRNWR) is part of the Sacramento National Wildlife Refuge Complex (Complex) and is located in the Sacramento Valley of north-central California. The Valley is bordered by the Sierra Nevada Range and Cascade Range to the east and the North Coast Range to the west. The Refuge is composed of 30 properties (units) along a 80-mile stretch of the Sacramento River between the cities of Red Bluff and Colusa 90 miles north of the metropolitan area of Sacramento. As of January 2014, the SRNWR consists of approximately 10,353 fee title acres of riparian habitat, wetlands, uplands, intensively managed walnut orchards, and row crops in Tehama, Butte, Glenn and Colusa counties.

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The Valley is an extensive agricultural area, which historically included vast herds of pronghorn and tule elk and tens of millions of wintering ducks and geese. Lands that surround the Refuge are mostly orchards and irrigated rice lands with some cattle grazing, safflower, barley, wheat, corn, and alfalfa crops. Topography on the floodplain is generally flat with a gentle slope to the south. The predominant soil type is Columbia loam.

Riparian habitat along the Sacramento River has been identified as critically important for endangered and threatened species, anadromous fishes, native resident fishes, migratory birds, native plants, and to the natural processes of the River. There has been a 95 percent reduction of riparian habitat along the Sacramento River. Habitat loss resulted from forest clearing, primarily for agriculture, dams for flood control and water storage on the main stem and tributaries, which attenuate and alter hydrology and geomorphology, and bank stabilization, such as levees and rip-rap, for flood control. The relatively small amount of remaining riparian woodland provides a strikingly disproportionate amount of habitat value for wildlife. The SRNWR is managed to maintain, enhance and restore habitats for threatened and endangered species, migratory birds, anadromous fish, and native plants and vegetation. As much as possible, habitat is managed for natural diversity of indigenous flora and fauna. Riparian forests are being restored by converting flood-prone croplands along the Sacramento River in cooperation with the California Department of Fish and Wildlife (CDFW), The Nature Conservancy (TNC), River Partners (RP), and other state and private conservation organizations.

There are a variety of outdoor activities that occur on the Sacramento River and adjacent lands. Hunting, fishing, wildlife observation, environmental education, interpretation, tubing, camping, and canoeing are some of the commonly known activities that occur during different times of the year on some private and public

lands (Figure 25, Chapter 5, CCP, USFWS 2005). Hunting of birds and mammals is a traditional outdoor activity that is consistent with Federal and State law as appropriate.

The purpose of this hunting plan is to outline how the program will be operated within the SRNWR. In addition, the Hunting Plan documents how the SRNWR will provide safe high quality hunting opportunities, while minimizing impacts to wildlife populations and limiting the potential for conflicts with other priority wildlife-dependent recreational uses.

The Service has determined hunting of dove, waterfowl, coot, common moorhen, pheasant, quail, snipe, turkey, deer, and feral pigs to be a compatible wildlife-dependent recreation (Hunting Compatibility Determination, Appendix B, CCP (USFWS 2005, *Feral Pig Hunting Compatibility Determination* 2014)). CDFW (2004b) also has determined that fish and wildlife resources found along the Sacramento River are healthy and robust enough to support regulated hunting and fishing, complimenting the other activities available to the public in their enjoyment of their public resources. Section 7 consultations with USFWS (2004) and NOAA-Fisheries (2004) concluded that the CCP (USFWS 2005) is not likely to adversely affect any of the special status species/designated critical habitat occurring on the SRNWR including: bald eagle, giant garter snake, winter-run Chinook salmon, spring-run Chinook salmon, Central Valley steelhead, green sturgeon, Valley elderberry longhorn beetle, western yellow billed cuckoo, fall-run Chinook salmon, and late fall-run Chinook salmon.

The Office of Migratory Bird Management sets the general frameworks through their annual regulations permitting the sport hunting of migratory birds. The individual States set seasons within those frameworks. If necessary, the Service develops regulations that may be more restrictive than State hunting regulations in order to protect resources on a refuge-by-refuge basis (i.e., species hunted). Otherwise, the Service observes State regulations on all refuges open to hunting.

U.S. Fish and Wildlife Service regional and refuge biologists along with scientists from the U.S. Geologic Survey—Biological Resources Division (Office of Migratory Bird Management) and university researchers meet twice annually with State flyway representatives to discuss inventory data and survey reports for migratory game bird populations which are hunted, proposed for hunting and closed to hunting. The Service bases its migratory waterfowl season length and bag limits for the various species on these surveys. The annual breeding ground survey is one of the most important surveys and has been conducted since 1955. This cooperative

effort between the Service and the Canadian Wildlife Service covers Canada, Alaska, and the northern United States prairies where 90 percent of the continental waterfowl populations breed. Results are summarized in various publications, including the annual fall flight forecast. Other important data include harvest and survival rate estimates from band returns. Whether to open a season for a species or not and the establishment of the season length and bag limits are determined by the population objectives for each species. A species must have a harvestable surplus to be considered for hunting. Population objectives for each species are calculated using data from population surveys and banding data.

Current management for mourning doves consists of annual population trend surveys, harvest surveys, and the establishment of annual hunting regulations. Since 1960, management decisions have been made within the boundaries of 3 zones that contain mourning dove populations that are largely independent of each other: the Eastern, Central and Western Management Units. Since 1966, Mourning Dove Call-count Surveys have been conducted annually in the 48 conterminous states by state and federal biologists to monitor mourning dove populations. In 1992, the U.S. Fish and Wildlife Service and state wildlife agencies initiated the national cooperative Harvest Information Program, which enables the Service to conduct nationwide surveys to provide reliable annual estimates of the harvest of mourning doves and other migratory game bird species. The resulting information on status and trends is used by wildlife administrators in setting annual hunting regulations. In 2001, a National Mourning Dove Planning Committee was formed to further develop guidelines that could be used for regional harvest management. The committee produced The Mourning Dove National Strategic Harvest Management Plan. The implementation of the plan began in July 2003 with the initiation of a national pilot reward-band study. Currently, population models are being finalized which will aid in the preparation of regional harvest management plans for 2005. Demographic models and data collection programs to support needs of regional harvest management plans will be established annually.

Resident game species are protected by both Federal and State laws and regulations to ensure that harvest rates do not negatively impact populations. The potential impacts of hunting on resident upland game birds and deer are discussed and evaluated in the California Environmental Quality Act process. This process results in periodically updated and publicly reviewed documents. Based on the findings of these documents, the State insures that game animal hunting in California does not adversely impact its wildlife populations to an unacceptable level (CDFG 2004b).

Wildlife populations along the Sacramento River are currently hunted on both private and public lands including the CDFW Sacramento River Wildlife Area (State). No impacts to those local populations have been documented (CDFG 2004b). Hunting is a highly regulated activity, and generally takes place at specific times and seasons (dawn and dusk, fall and winter) when the game animal is more active, and other wildlife-dependent activities (e.g., wildlife observation, environmental education and interpretation) are less common. The combination of these factors reduces the magnitude of disturbance to SRNWR wildlife. Regulated hunting will not reduce species populations to levels where other wildlife-dependent uses will be affected.

Two species, the ring-necked pheasant and turkey, were introduced into the area. More recently, feral pigs have immigrated into the area and reports of damage to crops, habitat, and facilities have increased. These non-native species have some potential to compete for habitat with native species, however no such competition has been noted along the Sacramento River (CFDG 2004b). In addition, selected game species are not known to prey upon other species at unacceptable levels. The potential for competition and predation exists whether the populations are hunted or not; however, removing individuals of non-native species by hunting could conceivably reduce this potential (CDFG 2004b).

II. Conformance with Statutory Authorities

National Wildlife Refuges are guided by the mission and goals of the National Wildlife Refuge System, purposes for which individual refuges were established, policies, laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (Improvement Act), the Refuge Recreation Act of 1962, and selected portions of the Code of Federal Regulations and Fish and Wildlife Service Manual. The Refuge Recreation Act of 1962, as amended, authorized the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use when such uses did not interfere with the area's primary purpose.

The Improvement Act identified a new mission statement for the Refuge System; established six wildlife-dependent recreational uses (hunting, fishing, wildlife observation and photography, environmental education and interpretation); emphasized conservation and enhancement of the quality and diversity of fish and wildlife habitat; stressed the importance of partnerships with Federal and State agencies, Tribes, organizations, industry, and the general public; mandated public involvement in decisions on the acquisition and management of refuges; and

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required, prior to acquisition of new refuge lands, identification of existing compatible wildlife-dependent uses that would be permitted to continue on an interim basis pending completion of comprehensive conservation planning.

The Improvement Act establishes the responsibilities of the Secretary of the Interior for managing and protecting the Refuge System; requires a CCP for each refuge by the year 2012; provides guidelines and directives for the administration and management of all areas in the Refuge System, including wildlife refuges, areas for the protection and conservation of fish and wildlife threatened with extinction, wildlife ranges, game ranges, wildlife management areas, and waterfowl production areas. The Improvement Act also establishes a formal process for determining compatibility of uses. Before any uses, including wildlife-dependent recreational uses, are allowed on refuges, Federal law requires that they be formally determined compatible. A compatible use is defined as a use that, in the sound professional judgment of the refuge manager, will not materially interfere with or detract from the fulfillment of the purposes of the refuge or mission of the Refuge System. Sound professional judgment is defined as a finding, determination, or decision that is consistent with the principles of sound fish and wildlife management and administration, available science and resources (funding, personnel, facilities, and other infrastructure), and applicable laws. The Service strives to provide wildlife-dependent recreational uses when compatible. If financial resources are not available to design, operate, and maintain a priority use, the refuge manager will take reasonable steps to obtain outside assistance from the State and other conservation interests.

The SRNWR was established in 1989 by the authority provided under the Endangered Species Act of 1973 and the Emergency Wetlands Resources Act of 1986, using monies made available through the Land and Water Conservation Fund Act of 1965. The Service proposed and Congress authorized the acquisition of 18,000 acres of land for establishment of the SRNWR. The area considered for acquisition is located along the Sacramento River between Colusa and Red Bluff in Colusa, Glenn, Butte, and Tehama counties. A combination of fee title and conservation easement acquisitions was used to protect this habitat. The purpose of the SRNWR is to preserve, restore, and enhance riparian habitat for threatened and endangered species, migratory birds, anadromous fish, native plants and vegetation. Compatibility determinations are included in Appendix B of the CCP (USFWS 2005).

Based upon biological impacts described in the Hunting Compatibility Determination (CD), Comprehensive Conservation Plan and Environmental Assessment (USFWS 2005), and Feral Pig Hunt CD (SRNWR 2014), which are

incorporated by reference, hunting within the Refuge is a compatible use and will not materially interfere with or detract from the purposes for which the Refuge was established. Stipulations within the Hunting CD's to ensure compatibility include: refuge-specific regulations; monitoring of hunting activities, habitat conditions, public use activities, wildlife population levels; and regular law enforcement patrols.

III. Statement of Objectives

Hunting is identified in the Refuge Improvement Act as a priority use for refuges when it is compatible with the refuge purposes and mission of the Refuge System. The SRNWR encourages dove, waterfowl, coot, common moorhen, pheasant, quail, snipe, turkey, deer, and feral pig hunting which are currently hunted species on other private and public lands along the Sacramento River. The hunting program will be conducted in a safe and cost effective manner, and will be carried out consistent with State regulations, see the Refuge Manual 8 RM 5, Hunting. The Hunting Plan was developed to provide safe hunting opportunities, while minimizing conflicts with other priority wildlife-dependent recreational uses. The Refuge hunting program will comply with the Code of Federal Regulations Title 50, 32.1 and managed in accordance with Refuge Manual Chapter 8 RM 5, Hunting.

Hunting will be permitted in accordance with State and Federal regulations and seasons to ensure that it will not interfere with the conservation of fish and wildlife and their habitats. Therefore, the sport hunting of migratory birds, upland game birds, deer, and feral pigs on the Refuge is in compliance with State regulations and seasons, the National Wildlife Refuge System Administration Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd-ee), and the Refuge Recreation Act of 1962 (16 U.S.C. 460k).

IV. Assessment

A. Are wildlife populations present in numbers sufficient to sustain optimum population levels for priority refuge objectives other than hunting?

Yes, wildlife populations are present in sufficient numbers for priority refuge objectives for wildlife management and for wildlife dependent recreational uses (hunting, fishing, wildlife observation and photography, environmental education, and interpretation). The Refuge adopts harvest regulations set by the State, which uses concepts of density dependent compensatory mortality and adaptive harvest management to ensure sustained game species populations. The SRNWR units are evaluated to determine the best public use strategy for providing high quality wildlife dependent public use opportunities. Over half of refuge lands are open to hunting, with 19%

providing opportunities for other wildlife dependent uses only and 21% remaining closed to all public use in order to provide areas of sanctuary that will function as a strong population base.

B. Is there competition for habitat between target species and other wildlife?

Possibly, while each species occupies a unique niche, there is only a finite amount of space available to satisfy various habitat requirements of water, food, cover, breeding, roosting, and fawning areas. Based on recent surveys and an increase in the number of crop and habitat damage reports documented by the CDFW and refuge biologists both on and off the SRNWR, it appears that the local deer and feral pig populations are on the rise and are impacting habitat restoration and farming activities.

C. Are there unacceptable levels of predation by target species on other wildlife forms?

No, target species (dove, waterfowl, coot, common moorhen, pheasant, quail, snipe, turkey, deer, and feral pigs) generally do not prey on other species at unacceptable levels. Occasionally, in certain areas, deer browse of seedling valley oak is particularly heavy and feral pigs have been known to effect ground nesting bird success.

V. Description of Hunting Program

A. Areas of the refuge that support populations of the target species

Target game species commonly occurring on the SRNWR include waterfowl, coots, common moorhen, snipe, dove, quail, pheasant, turkey, deer and feral pigs. Descriptions of freshwater wetland and riparian habitats and their associated plant/wildlife species are described below and in further detail in Chapter 3 of the CCP. A list of animal and plant species occurring on the Refuge can be found in Appendix G of the CCP. An overview of hunted target wildlife species is also described below.

Habitats

Riparian Habitats and Vegetation

SRNWR "riparian" habitats are referred to as: open water, gravel and sand bars, herbland cover, blackberry scrub, Great Valley riparian scrub, Great Valley cottonwood riparian forest, Great Valley mixed riparian forest, Valley oak, and Valley freshwater marsh (Geographic Information Center at California State University, Chico 2002). Distributions of these habitats on Refuge units can be seen in Figures 11-24 (Chapter 3, CCP).

Open water constitutes water, either standing or moving, and does not necessarily include vegetation. These areas support many fish species, including salmon, steelhead, and sturgeon, as well as avian species such as American white pelican, double-crested cormorant, osprey, kingfisher, and common merganser.

Gravel and sand bars appear as open, un-vegetated areas in air photos, but ground inspection reveals several annual and short-lived perennial species of sun-loving herbs, grasses, and aromatic subshrubs. The vegetation cover is less than 50%. Species such as killdeer, spotted sandpiper, and lesser nighthawk commonly use these areas.

Herbland cover is composed of annual and perennial grasses and forbs, and is enclosed by other riparian vegetation or the stream channel. Species such as lazuli bunting, blue grosbeak, and common yellowthroat frequently nest in these areas.

Blackberry scrub is vegetation where 80% or more of the coverage is blackberry shrubs. Blackberry shrubs are important escape cover for California quail, and are used for perches by a variety of songbirds.

Great Valley riparian scrub forms from primary succession processes where vegetation becomes established in areas where erosion and sedimentation of deposits have occurred (Holland 1986; Holland and Roye 1989). Vegetation includes streamside thickets dominated by sandbar willows, or by other fast growing shrubs and vines. It is also commonly populated by cottonwood, California rose, Mexican tea, and wild grape. Typical inhabitants include the black-chinned hummingbird, willow flycatcher, western flycatcher, mourning dove, and black phoebe.

Great Valley cottonwood riparian forest consists of cottonwoods that are at least one year old and account for 80% or greater of the canopy coverage. Cottonwood forests are an early successional stage riparian vegetation type and consist of primarily mature Fremont cottonwood trees and sparse understory (Holland 1986; Holland and Roye 1989). They can also include one or more species of willows and have a dense understory of Oregon ash, box elder, wild grape, and various herbs and grasses. Several species including the bald eagle, yellow-billed cuckoo, and western flycatcher nest and forage in this habitat type.

Great Valley mixed riparian forest (MRF) is a forest vegetation type consisting of later successional species, such as valley oak (Holland 1986; Holland and Roye 1989). Valley oak accounts for less than 60% of the canopy coverage with black walnut, Oregon ash, and western sycamore also present. Willows and cottonwood may also be present in relatively low abundance. The dense understory often consists of Oregon ash, box elder, poison oak, and wild grape. Due to the dense canopy and understory, a large variety of Neotropical migrant bird species use this habitat, such as the yellow-billed cuckoo, yellow-rumped warbler, black-headed grosbeak, and spotted towhee. Since MRF frequently edges oxbows and sloughs, it attracts a large array of species that are “wetland-related”, including the northwestern pond turtle, great blue heron, great egret, double-crested cormorant, wood duck, yellow-breasted chat, common yellowthroat, and song sparrow.

The valley oak riparian forest (VORF) consists of vegetation with at least 60% valley oak canopy. Restricted to the highest parts of the floodplain, VORF occurs in areas that are more distant from or higher than the active river channel. This habitat type is a medium to tall deciduous, closed-canopy forest dominated by valley oak and may include Oregon ash, black walnut, and western sycamore. The understory includes California pipevine, virgin's bower, California blackberry, California wildrose, poison oak, and blue wild-rye (Holland 1986). Common species found here include the red-shouldered hawk, great horned owl, western screech owl, acorn woodpecker, Bewick's wren, bushtit, and scrub-jay. Historically, an extensive habitat, it has been greatly reduced by agriculture and firewood harvesting and is now only limited and scattered in occurrence.

Valley oak woodland (VOW) is found on deep, well-drained alluvial soils, far back from or high above the active river channel (Holland 1986). VOW is an open, winter-deciduous savanna dominated by widely spaced oaks, blue elderberry, and coyote brush, with an understory of grasses and forbs. VOW often intergrades with VORF. Due to its more open nature, VOW attracts different avian species than VORF, such as the Swainson's hawk, American kestrel, western kingbird, loggerhead shrike, yellow-billed magpie, and western meadowlark. VOW once occupied thousands of acres in the Great Central Valley. It occurred on the best agricultural soils (Columbia and Vina type) that covered thousands of acres in the Great Valley (Bureau of Soils 1913; Holland 1986; Holmes et al. 1915; Watson et al. 1929). Consequently, valley oak woodlands are among the most reduced natural habitat type in California.

Valley freshwater marsh is dominated by perennial emergent monocots, a type of marsh vegetation. Cattails or tules usually are the dominants, often forming stands that are sparingly populated with additional species, such as rushes and sedges. Coverage may be very high, approaching 100 percent. Typical riparian areas that support freshwater marsh include the main channel, tributaries, sloughs, abandoned channel, oxbow lakes, and ponds. These areas attract an array of wetland dependent species such as mallard, wood duck, black-crowned night-heron, great egret, great blue heron, American bittern, western pond turtle and giant garter snake.

Wetland Habitats

The Sacramento River, its tributaries, sloughs, abandoned channels, oxbow lakes, and ponds support freshwater wetlands. The river channel is dynamic: it varies with meander belt position from shallows near gravel bars to deep holes below steep cut banks. Depth and flow velocity also varies with seasonal differences in runoff and with flow releases from Keswick Dam. Generally, water in the channel is relatively fast moving and cold. Oxbow lakes occur on the middle Sacramento River floodplain. They form on meandering rivers when the channel breaches a narrow gap of land in the loop and a sand plug seals the upriver arm of the loop. They vary in depth depending on siltation. Water is calm and relatively warm compared to the main channel. Sloughs and swales convey and distribute water on the floodplain. They are usually wet only during high water and flood events. Gravel pits were excavated on the Sacramento River floodplain for private and public roads and an experimental artificial salmon-spawning project conducted by the Bureau of Reclamation. Gravel pits form wetlands when the bottom contacts the water table. Large portions of the Sacramento River floodplain become temporary wetlands when inundated with seasonal runoff from the tributaries and releases from Keswick Dam. A diversity of fish and wildlife use these various types of wetlands during portions of their life history, including nesting, migration, and wintering periods.

Target Species

CDFG (2004b) also has determined that fish and wildlife resources found along the Sacramento River are healthy and robust enough to support regulated hunting and fishing.

Migratory Game Birds

The primary waterfowl use of the SRNWR is by migrating and wintering birds during the months of November through March. Peak populations occur during December, when several thousand ducks are present. A small percentage remains through spring and summer months to nest. Common wintering duck species include mallard, American wigeon, green-winged teal, northern shoveler, wood duck, ring-necked duck, common goldeneye, and common merganser. Wintering goose species consist mostly of western Canada geese, but occasionally white-fronted and snow geese during increment weather. The primary summer nesting species include mallard, wood duck, and common merganser, and lesser numbers of western Canada goose.

Waterfowl areas consist primarily of wetlands including the main river channel, tributaries, sloughs, swales, oxbow lakes, and freshwater marshes. When flooded by winter rains and releases from Keswick Dam, the sloughs, swales, and oxbow lakes become important winter habitat for waterfowl, especially ducks. A few species such as mallard, wood duck, common merganser, and Canada goose nest in herbaceous vegetation near the river and raise their broods at the wetlands and riparian area.

The mourning dove commonly uses gravel bars and nest in riparian forests and orchards. Current riparian restoration efforts provide excellent foraging, loafing, and nesting habitat for mourning doves, which tend to prefer the early succession stages of willow scrub and cottonwood forest.

Upland Game Birds

Game birds occupy various riparian habitats along the Sacramento River. The more mature riparian habitats, especially Valley oak riparian forest and Valley oak savannah, provide excellent habitat for California quail, and wild turkey. California quail nest in the herbaceous layer of various riparian habitats and use blackberry and other thickets for escape cover. Wild turkey use large trees for roosts and nest in dense herbaceous vegetation. Ringed-neck pheasant occur occasionally and nest in dense herbaceous vegetation and feed and roost in various riparian habitats.

Big Game

Black-tailed deer and feral pigs occupy various riparian habitats along the Sacramento River. Deer fawning areas are usually in dense riparian forest where deer find sanctuary from predators. Deer graze and browse on selected riparian plants and agricultural crops during their annual life history. Feral pigs are most active at night and forage by rooting up the soil to feed on

invertebrates and rhizomatous plants as well as mast in the form of acorns, walnuts, almonds and various agricultural cereal crops.

B. Areas to be opened to the public

The SRWNR currently consists 10,350 acres of agricultural, wetland, grassland, and riparian habitats (Table 1, Chapter 1, CCP). Initially 3,356 acres were opened in 2005. Since 2005 an additional 1,975 acres to total 5,331 acres (52 percent) open to hunting (Figure 28, Chapter 5, CCP). An additional 714 acres will be open within 5 years following the completion of riparian restoration efforts on the La Barranca, Codora and Bogg's Bend Units which will result in a total of 6,045 acres (59 percent) open to hunting and other wildlife dependent recreation. The 6,045 acres open to hunting is also open to other recreational uses including fishing, wildlife observation and photography, environmental education, and interpretation.

Access to the SRNWR units is primarily by boat access only. Nine units (Rio Vista, Pine Creek, Capay, Ord Bend, Sul Norte, Codora, Packer, Drumheller North and Drumheller Slough) have parking areas developed for pedestrian access. Not all areas are open to hunting.

C. Species to be taken, hunting periods

Hunting of waterfowl, coots, common moorhen, snipe, dove, quail, pheasant, turkey, deer and feral pigs will be allowed in accordance with State hunting regulations during the legal hunting seasons and shooting times (Table 10, Chapter 5, CCP). Feral pig hunting (open year round under State regulations) will be limited to September 15th through March 15th, concurrent with other hunting activities currently available on the Refuge.

In order to promote interest in hunting, the Service will continue to coordinate Junior Hunts on the Complex with the CDFW and nongovernment agencies. The Codora Unit of the SRNWR will be open to junior hunters only to provide a high quality, low competition experience. This proposed use has been vetted through the Sacramento NWRC/CDFW hunter working group and was supported by the committee.

D. *Justification for a permit if one is required*

A California hunting license and tags are required for taking any bird or mammal.

The Service will continue to monitor for adverse impacts and assess the need for turkey and deer hunting by permit only on SRNWR lands during the hunting seasons to evaluate hunter crowding and potential safety hazards. If the refuge manager determines that overcrowding or overharvest becomes an issue, a refuge permit could be required to hunt these species on the SRNWR.

Hunters do not need to obtain a refuge hunting permit or pay a special user fee to hunt on the Refuge. In the future, refuge user fees may be considered. There is a fee for State hunting licenses and tags.

E. *Procedures for consultation and coordination procedures with State*

Each year, the Sacramento Refuge Complex hosts pre and post hunting meeting with the CDFW managers and wardens to discuss plans, issues, and potential changes to the hunt program. In addition, CDFW, California State Parks and Recreation, and the Refuge have a Memorandum of Understanding (MOU) (USFWS et. al 2001, updated 2005) that authorizes cooperative management efforts. Yearly coordination meetings are held in accordance with the MOU. CDFW (2004b) also has determined that fish and wildlife resources found along the Sacramento River are healthy and robust enough to support regulated hunting and fishing, complimenting the other activities available to the public in their enjoyment of their public resources.

F. *Methods of control and enforcement (identify check stations)*

- Boundary and public use signs depicting allowable uses are located and maintained above the approximate ordinary high water mark, refuge boundaries and at vehicle access points.
- California Department of Boating and Waterways boating guide pamphlet depicts the Refuge Unit names and river mile location and the SRNWR brochure are available on the SRNWR website and at Refuge kiosks where units are accessible by vehicle.
- Service roads will be gated to allow only pedestrian access from parking areas.
- Landward boundaries are closed to discourage trespass through adjacent private lands.
- Hunting is not allowed within 50 feet of any landward boundaries adjacent to privately owned property. As per CDFW regulations, it is unlawful to hunt or discharge while hunting, any firearm or deadly weapon within 150 yards

of any occupied dwelling house, residence, or other building or any barn or other outbuilding used in connection therewith. The 150-yard area is a “safety zone”.

- Monitor hunting visits via personal contact by law enforcement officers, Refuge website, email, and vehicle counters at units with parking.
- Field checks by federal wildlife law enforcement officers will be planned and coordinated with staff and other agencies to maintain compliance with regulations and assess species and number harvested.
- Regular law enforcement patrols by federal wildlife officers, special agents, state game wardens, park rangers, and deputy sheriffs.
- There will not be any check stations on the Refuge.

G. Funding and staffing requirements for the hunt

The following funding/annual costs (based on FY 2013 costs) would be required to administer and manage hunting activities as described above:

	One-Time Costs	Annual Costs
Administration		\$15,000
Law Enforcement		\$22,000
Outreach, Education, Monitoring		\$5,000
Signs, brochures, and maintenance	\$20,000	\$3,000
TOTAL	\$20,000	\$45,000

Approximately 95 staff days would be required to monitor and conduct the hunt program for the SRNWR. This would include administration, law enforcement patrol, education and outreach, and monitoring of the program. It would also include sign posting. During the first year, the SRNWR installed information signs both at available parking areas as well as at access points above the ordinary high water mark, and developing a general refuge and a hunt brochure. The total cost of the program is expected to be \$45,000.00 per year. The initial setup in the first year for the hunt program is expected to cost an additional \$20,000.00. No user fees are being proposed at this time, therefore, base funding will need to cover costs to implement the program. Currently, the Refuge has two full-time and one dual-function law enforcement officers that patrol along the SRNWR. CDFW wardens provide additional law enforcement support on a regular basis.

H. Consideration of providing opportunities for hunters with disabilities

- A $\frac{3}{4}$ -mile accessible trail and disabled blind was constructed and is maintained on Sul Norte Unit.
- All parking areas and portable toilets are fully accessible.
- Parking lots have been developed at vehicle accessible hunting units (Capay, Sul Norte, Drumheller North, Drumheller Slough, and Codora -*junior hunt only*).
- Work with partners to further develop hunting opportunities on refuge and other public lands. Nearby facilities have opportunities for disabled access (see Appendix N of the CCP).

VI. Measures Taken to Avoid Conflicts with Other Management Objectives

The impacts addressed here are discussed in detail in Environmental Assessment (Appendix A, Chapter 4) for the CCP (USFWS 2005) and the SRNWR Environmental Assessment Supplemental Cumulative Impacts Analysis of the Hunt Program (USFWS 2007) which is incorporated by reference.

A. Biological Conflicts

Biological conflicts will be minimized by the following:

- Proper zoning, regulations, and SRNWR hunting seasons will be designated to minimize negative impacts to wildlife.
- Due to difficult access to most units where hunting is allowed (primarily only by boat), the number of hunters and visits will self-limit the amount of hunting that occurs on the SRNWR.
- Sanctuary units are located within separate reaches of the River, which distributes areas needed by wildlife for resting, feeding, nesting, and fawning.
- Density of the riparian forests provides additional sanctuary for wildlife species.
- Use of federally approved nontoxic shot for all hunting except deer and feral pigs will help minimize possibility of lead poisoning.
- No hunting during the breeding season (except spring turkey). Hunting will be allowed only during designated seasons for waterfowl, upland game birds, deer, and feral pigs.
- Law enforcement presence to minimize excessive harvest and other infractions (illegal use of lead shot, take of non-game species, trespass, littering, etc.).
- No firearms permitted on the SRNWR outside the designated firearm hunting seasons and areas.
- Section 7 consultations with USFWS (2004) and NOAA-Fisheries (2004) concluded that the CCP (USFWS 2005) is not likely to adversely affect any of the special status species/designated critical habitat occurring on the Refuge

including: bald eagle, giant garter snake, winter-run Chinook salmon, spring-run Chinook salmon, Central Valley steelhead, Valley elderberry longhorn beetle, western yellow-billed cuckoo, fall-run Chinook salmon, and late fall-run Chinook salmon.

- Provide information in SRNWR kiosks about preventing the spread of invasive species including the spread of aquatic species by boats.

B. *Public Use Conflicts*

Conflicts between hunting and other public uses and neighboring landowners will be minimized by the following:

- Provide 1,911 acres (19%) of the refuge for non-hunting activities only (i.e. wildlife observation, photography, interpretation, environmental education and fishing activities) which will separate the user groups spatially. Non hunting activities are also allowed on the 59% (6,045 acres) of the Refuge open to hunting. The remaining 22% of the Refuge is closed to public access to protect sensitive resources and provide wildlife sanctuary.
- Landward boundaries are closed to discourage trespass from and onto adjacent private lands.
- Hunting will not be allowed on SRNWR units that are small in area and close in proximity to urban areas, sensitive resources, and private dwellings.
- Post all SRNWR units with boundary signs and provide public use information signs prior to opening to the public.
- Construct gates and fences at access points to reduce the potential of trespass. Each gate is signed with access restrictions and a contact number for more information.
- Provide information about the SRNWR hunting program by installing informational signs/kiosks, creating and distributing brochures, and utilizing the Refuge's website (http://www.fws.gov/refuge/sacramento_river/).
- Place public use signs at vehicle access points and at the approximate ordinary high water mark on all SRNWR units open to the public. The signs will depict the unit name, river mile, and public uses allowed/prohibited (Figures 26 & 27 of the CCP).
- Restrict entry and departure times on the refuge i.e. two hour before sunrise to one and 1½ hour after sunset.
- Camping is allowed on gravel bars below the ordinary high water mark up to seven days during any 30-day period. We prohibit camping on all other refuge lands (see Camping and Recreational Boating Compatibility Determination (USFWS 2005)).
- Allow pedestrian and boat traffic. Bicycles are permitted on limited units and designated trails May 15 through August 15 which is not during hunting season.

- Hunters using boats (motorized and non-motorized) must abide by the boating stipulations described in the State and Coast Guard regulations on boating.
- Provide coordinated law enforcement patrols by game wardens, park rangers, and federal wildlife officers to enforce state and federal regulations.
- Outreach plan will serve as a means for managing social conflicts.

C. Administrative Conflicts

There are no administrative conflicts with this proposal at this time. As the program expands (i.e. permit system), there may be conflicts associated with the cost of the program.

VII. Conduct of the Hunt

The following special regulations are proposed to replace the existing special regulations for Hunting of Migratory Game Birds, Upland Game and Big Game on the SRNWR. The regulations will be noticed in the Federal Register and incorporated into 50 CFR 32.24, California Refuge-specific regulations.

A. Refuge-specific hunting regulations

There will be no hunting fees or hunter quotas for the Sacramento River NWR (refuge). All gravel bars and specified refuge lands are open to hunting and fishing under the following conditions, which can be found in the Federal Register (FR) online at http://www.fws.gov/refuge/Sacramento_River/.

A. Migratory Game Bird Hunting. We allow hunting of goose, duck, coot, moorhen, dove, and snipe on designated areas of the refuge in accordance with State regulations subject to the following conditions:

1. Access to the hunt area on all units open to public hunting is by boat only, except on designated Units, which are accessible by foot traffic or boat. We prohibit bicycles or other conveyances during the hunting season. Mobility impaired hunters should consult with the refuge manager for allowed conveyances. Waterfowl hunting is not allowed on the Mooney and Codora Units.
2. On the Codora Unit, junior hunting (16 years old or younger) is allowed on weekends only (closed to hunting on weekdays). Junior hunters must possess a valid hunting license and be accompanied by a non-hunting adult.
3. Possession of alcohol is prohibited.
4. We only allow shotgun hunting.

5. Firearms must be unloaded (*see* § 27.42(b) of the FR) before transporting them between parking areas and hunting areas. “Unloaded” means that no ammunition is in the chamber or magazine of the firearm.
6. You may possess only approved nontoxic shot while in the field (*see* § 32.2(k) of the FR).
7. We prohibit hunting within 50 feet (15 m) of any landward boundary adjacent to private property.
8. We prohibit hunting within 150 yards (45 m) of any occupied dwelling, house, residence, or other building or any barn or other outbuilding used in connection therewith.
9. We prohibit fires on the refuge, except we allow portable gas stoves on gravel bars (*see* § 27.95(a) of the FR).
10. We open the refuge for day-use access from 2 hours before legal sunrise until 1½ hour after legal sunset. We allow access during other hours on gravel bars only (*see* condition A8).
11. We require dogs to be kept on a leash, except for hunting dogs engaged in authorized hunting activities, and under the immediate control of a licensed hunter (*see* § 26.21(b) of the FR).
12. We prohibit permanent blinds. You must remove all personal property, including decoys and boats, by 1½ hour after legal sunset (*see* §§ 27.93 and 27.94 of the FR).
13. We prohibit cutting or removal of vegetation for blind construction or for making trails (*see* § 27.51 of the FR).
14. Commercial guiding is prohibited.

B. Upland Game Hunting. We allow hunting of pheasant, turkey, and quail on designated areas of the refuge in accordance with State regulations subject to the following conditions:

1. We only allow shotgun and archery hunting.
2. Conditions A1 through A14 apply.

C. Big Game Hunting. We allow hunting of black-tailed deer and feral pigs on designated areas of the refuge in accordance with State regulations subject to the following conditions:

1. Conditions A1 through A5 and A7 through A14, and B1 apply.
2. Feral pigs may be hunted between September 15th and March 15th.
3. Dogs are prohibited while hunting (take or pursuit) feral pigs.
4. We prohibit construction or use of permanent blinds, platforms, ladders or screw-in foot pegs.
5. You must remove all personal property, including stands or hunting blinds from the refuge by 1½ hour after legal sunset (*see* §§ 27.93 and 27.94 of the FR).

6. Shotgun, firing single shotgun slugs, and archery hunting only. No rifles or pistols may be used or possessed on the Refuge.

B. Anticipated public reaction to the hunt

Most hunters support the opening of the SRNWR to hunting. Hunting and fishing have a strong traditional use on the Sacramento River. During the comment periods and public meetings for the CCP in 2001 and 2004, a variety of opinions were heard. The majority of the comments received supported increasing access to the Refuge and opening as much of the SRNWR to hunting as possible (see Chapter 2 and Appendix R of the CCP). Some hunters, and other refuge visitors, may object to boat only access to many of the SRNWR units and for not installing additional boat ramps on the Refuge. The Refuge's ability to provide landward access is limited by private property ownership and access restrictions. Anti-hunting individuals and organizations also voiced their objection to any hunting on the SRNWR (see Appendix R of the CCP).

According to data collected via of law enforcement officer compliance checks, staff observations, and vehicle counters, the refuge provided opportunities for approximately 3,500 annual hunting visits in 2013. A total of 33,500 annual visits were estimated for all wildlife dependent recreational uses.

C. Hunter application and registration procedures

A California hunting license and tags are required for taking any bird or mammal. See Section G of Hunter Requirements below.

D. Description of hunter selection process, if needed

At this time, there are no restrictions or limits on the number of hunters permitted on the Refuge. See Section G or Hunter Requirements below.

E. Media selection for announcing and publicizing the hunt

The refuge has a standard list of local media contacts for news releases. A news release announcing the hunt will be sent out approximately one month prior to the first day of the hunt. Yearly announcements, if needed, will be issued thereafter. A draft news release regarding the hunting program is attached. An outreach plan is also included below.

Outreach plan

1. Issue

The Service intends to propose the opening of SRNWR to hunting.

2. Basic facts about the issue

- Approximately 6,045 acres (59%) will be open to hunting (Figure 28, Chapter 5, CCP).
- Hunting of waterfowl, coots, common moorhen, snipe, dove, quail, pheasant, turkey, wild pig, and deer will be allowed in accordance with State and refuge-specific hunting regulations during the legal hunting seasons and shooting times.
- Hunting is permitted in accordance with State and Federal regulations and seasons to ensure that it will not interfere with the conservation of fish and wildlife and their habitats.
- Method of enforcement and control will take place through boundary and public use signs, information kiosks at parking areas, and routine patrol by CDFW wardens and Federal wildlife officers operating under the Refuge System.
- Biological conflicts will be minimized by use of federally approved nontoxic shot and providing sanctuary areas that are strategically dispersed and well distributed along the River.
- The density of the riparian forests and presence of poison oak, ticks, mosquitoes and periodic flooding will reduce or limit the amount of visitation on some areas.
- Hunting will not be allowed on SRNWR units that are small in area and close in proximity to urban areas and private dwellings.
- Landward boundaries are closed to discourage trespass from and onto adjacent private lands.
- Entry and departure times on the refuge will be restricted except for camping on the gravel bars.
- The majority of the hunt area will be accessible by boat access only.

3. Communication goals

- Continue to solicit input from partners and keep lines of communication open.
- Continue to attend pre and post hunt meetings with CDFW.
- Continue to solicit input from annual Refuge Hunting Working Group Meetings which include comments from disabled hunters. Continue to coordinate with the Sacramento River Conservation Area Forum.
- Ensure accurate public information and provide news releases.
- Utilize the Refuge's website to provide information (http://www.fws.gov/refuge/sacramento_river/).

4. Message

A quality, compatible and safe hunting program can be implemented and maintained on the SRNWR.

5. Interested parties

State fish and wildlife agencies; Tribes; nongovernmental organizations; conservation groups; hunting, fishing, and wildlife observation groups; educators; farmers and ranchers; other federal agencies; members of Congress; state and county representatives; news media; and many members of the public.

6. Date

December 2013

F. Description of hunter orientation, including pre hunt scouting opportunities

Maps and hunting information will be provided on the SRNWR website, in the California State hunting regulations, at public boat ramps, and entrance roads to SRNWR units. The SRNWR will be open year round, therefore pre hunt scouting will be allowed in hunt areas.

G. Hunter requirements

(1) State determined age requirement

- Applicants for deer hunting must be at least 12 years old as stated in State regulations.
- Youth hunters, 15 year or younger, must be accompanied by adults 18 years or older.

(2) Allowable equipment

- Method of take: Federally approved nontoxic shot required for all species except deer and feral pigs. Weapons or ammunition for take of deer and feral pigs include shotgun, firing single shotgun slugs, and archery. No rifles or pistols may be used or possessed on the Refuge.
- Dogs are required to be kept on a leash, except for hunting dogs engaged in authorized hunting activities and under the immediate control of a licensed hunter (see 50 CFR 26.21(b)). Dogs are not allowed for hunting or pursuit of feral pigs.
- We do not allow permanent blinds. You must remove all personal property, including decoys and boats, at the end of each day (see 50 CFR 27.93).

(3) Use of open fires

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- We prohibit fires on the refuge, except portable gas stoves on gravel bars below the ordinary high water mark (see 50 CFR 27.95(a)).

(4) Licensing and permits

- State hunting license is required for taking any bird or mammal. Hunters must carry licenses and be prepared to show them upon request.
- State and Federal duck stamps are required to take migratory waterfowl, an upland game bird stamp is required to take dove, pheasants, quail, and turkey; State license tags are required for taking deer and pigs.
- Assess the need for turkey and deer hunting by permit only on SRNWR lands during the hunting seasons. This would be an additional refuge permit required to hunt these species on the SRNWR if deemed appropriate to reduce crowding and ensure safety.

(5) Reporting harvest

- Hunters must report take of deer and feral pigs to CDFW according to State regulations.

(6) Hunter training and safety

Hunters are required to successfully complete a hunter education course in order to purchase a State hunting license.

(7) Other information (use of dogs, falconry, etc.)

- Bird hunting: trained retrieving dogs are allowed.
- Deer hunting: use of dogs is allowed according to State regulations.
- Falconry is not allowed.
- Pig Hunting: the use of dogs is not allowed.
- Dog trials are not allowed.

VIII. Compatibility Determination

See Appendix B in CCP (USFWS 2005), Feral Pig Hunting (USFWS 2014)

IX. Appropriate NEPA Documents

See EA (Appendix A in CCP (USFWS 2005)) and the SRNWR Environmental Assessment Supplemental Cumulative Impacts Analysis of the Hunt Program (USFWS 2007)

X. Evaluation

A. *Monitoring and reporting use levels and trends*

There are numerous acceptable methods and techniques that have been developed for estimating number of visits on refuges. These methods may apply to different situations including areas not accessible by roads, areas that have more than one activity occurring at a time, or areas that have multiple access points. The following methods of estimating the number of visitors will be used on SRNWR: direct observations, traffic counters, patrols, self-registration, extrapolations from limited data using stratified samples, and best professional judgment. Harvest limits will be estimated using stratified sampling, big game tag reports, self-registration, patrol, and direct observations.

A team of specialists are completing the FWS Visitation Estimation Handbook that will be used on all National Wildlife Refuges. It will take into account staffing levels, refuge acreage, volunteer support, access points, monitoring sites, etc. Given multiple variables, estimation methods will be presented for use on various areas. Currently, there are interim guidelines for visitation monitoring on National Wildlife Refuges for the Refuge Management Information System - Public Education and Recreation section.

Use levels, trends, and needs will be evaluated through hunters' harvest report/comment report cards, report take of deer, auto counters, hunter contact in the field, comments during working group, agencies, and public meeting, e-mails and letters. The visitor use will be recorded annually in the Refuge Management and Information System.

B. Surveying needs of the hunting visitor

Through the ongoing research program on the Refuge, universities will be contacted to develop a survey assessing visitor needs.

C. Are we meeting program objectives?

Hunting has been allowed on the Sacramento River Refuge since 2005. The hunting program objective to, "*provide high quality hunting opportunities on 3,356 acres by 2005 and an additional 1,967 acres within 2-10 years*", will be met through the CCP strategies. Monitoring will determine if we are meeting program objectives.

D. Do we need to resolve any conflicts?

Not at this time. The hunting program and outreach plans are written to minimize future conflicts.